

ARP Associates		Page 0
Northwest House	425-87-V3 - Network 2	
Servia Hill	1.100Yr + 40% CC Results	
Leeds LS6 2QH	Gypsy Lane, Wombwell	
Date 08/07/2022	Designed by JMG	
File V3 - NW2.MDX	Checked by MI	
Elstree Computing Ltd	Network 2018.1	

Time Area Diagram for Storm Network 2

Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	0.450	4-8	0.944

Total Area Contributing (ha) = 1.394

Total Pipe Volume (m³) = 61.973

ARP Associates		Page 1
Northwest House Servia Hill Leeds LS6 2QH	425-87-V3 - Network 2 1.100Yr + 40% CC Results Gypsy Lane, Wombwell	
Date 08/07/2022 File V3 - NW2.MDX	Designed by JMG Checked by MI	
Elstree Computing Ltd	Network 2018.1	

Existing Network Details for Storm Network 2

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type
1.000	13.185	0.165	79.9	0.062	4.00	0.0	0.600	o	225	Pipe/Conduit
1.001	51.943	1.374	37.8	0.163	4.00	0.0	0.600	o	225	Pipe/Conduit
1.002	28.274	0.488	57.9	0.042	4.00	0.0	0.600	o	300	Pipe/Conduit
2.000	16.644	0.502	33.2	0.129	4.00	0.0	0.600	o	225	Pipe/Conduit
2.001	51.719	0.679	76.2	0.030	4.00	0.0	0.600	o	225	Pipe/Conduit
3.000	26.051	0.154	169.2	0.109	4.00	0.0	0.600	o	225	Pipe/Conduit
2.002	29.629	0.320	92.6	0.089	4.00	0.0	0.600	o	300	Pipe/Conduit
1.003	69.252	3.034	22.8	0.156	4.00	0.0	0.600	o	375	Pipe/Conduit
1.004	26.367	1.161	22.7	0.040	4.00	0.0	0.600	o	375	Pipe/Conduit
1.005	11.695	0.734	15.9	0.000	4.00	0.0	0.600	o	375	Pipe/Conduit
1.006	25.844	1.798	14.4	0.036	4.00	0.0	0.600	o	375	Pipe/Conduit
1.007	22.334	0.112	199.4	0.159	4.00	0.0	0.600	o	600	Pipe/Conduit
4.000	16.601	0.297	55.9	0.037	4.00	0.0	0.600	o	225	Pipe/Conduit
5.000	7.741	0.575	13.5	0.079	4.00	0.0	0.600	o	225	Pipe/Conduit
4.001	33.138	1.125	29.5	0.103	4.00	0.0	0.600	o	225	Pipe/Conduit

Network Results Table

PN	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Vel (m/s)	Cap (l/s)
1.000	60.461	0.062	0.0	1.46	58.2
1.001	60.296	0.225	0.0	2.13	84.9
1.002	58.847	0.267	0.0	2.07	146.3
2.000	60.302	0.129	0.0	2.28	90.7
2.001	59.800	0.159	0.0	1.50	59.6
3.000	57.908	0.109	0.0	1.00	39.9
2.002	57.679	0.357	0.0	1.63	115.5
1.003	57.284	0.780	0.0	3.81	420.4
1.004	54.250	0.820	0.0	3.82	421.5
1.005	53.089	0.820	0.0	4.56	503.5
1.006	52.355	0.856	0.0	4.80	530.2
1.007	50.332	1.015	0.0	1.72	486.6
4.000	52.347	0.037	0.0	1.75	69.7
5.000	52.625	0.079	0.0	3.59	142.6
4.001	52.050	0.219	0.0	2.42	96.2

ARP Associates		Page 2
Northwest House Servia Hill Leeds LS6 2QH	425-87-V3 - Network 2 1.100Yr + 40% CC Results Gypsy Lane, Wombwell	
Date 08/07/2022 File V3 - NW2.MDX	Designed by JMG Checked by MI	
Elstree Computing Ltd	Network 2018.1	

Existing Network Details for Storm Network 2

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type
4.002	16.428	0.330	49.8	0.017	4.00	0.0	0.600	o	300	Pipe/Conduit
1.008	19.969	0.200	99.8	0.014	4.00	0.0	0.600	o	600	Pipe/Conduit
1.009	23.751	0.679	35.0	0.074	4.00	0.0	0.600	o	600	Pipe/Conduit
6.000	7.334	0.087	84.3	0.037	4.00	0.0	0.600	o	150	Pipe/Conduit
1.010	11.031	1.083	10.2	0.000	4.00	0.0	0.600	o	600	Pipe/Conduit
1.011	8.081	0.685	11.8	0.018	4.00	0.0	0.600	o	675	Pipe/Conduit
1.012	11.626	0.040	290.7	0.000	4.00	0.0	0.600	o	675	Pipe/Conduit
1.013	5.730	0.012	477.5	0.000	4.00	0.0	0.600	o	675	Pipe/Conduit
1.014	8.537	0.107	79.8	0.000	4.00	0.0	0.600	o	150	Pipe/Conduit
1.015	65.368	2.000	32.7	0.000	4.00	0.0	0.600	o	150	Pipe/Conduit
1.016	9.025	0.903	10.0	0.000	4.00	0.0	0.600	o	150	Pipe/Conduit
1.017	50.375	0.937	53.8	0.000	4.00	0.0	0.600	o	150	Pipe/Conduit

Network Results Table

PN	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Vel (m/s)	Cap (l/s)
4.002	50.850	0.236	0.0	2.23	157.9
1.008	50.220	1.265	0.0	2.44	689.1
1.009	50.020	1.339	0.0	4.13	1166.8
6.000	51.131	0.037	0.0	1.10	19.4
1.010	49.341	1.376	0.0	7.66	2165.4
1.011	48.183	1.394	0.0	7.66	2739.8
1.012	47.498	1.394	0.0	1.53	548.3
1.013	47.458	1.394	0.0	1.19	426.8
1.014	47.396	1.394	0.0	1.13	19.9
1.015	47.289	1.394	0.0	1.77	31.2
1.016	45.289	1.394	0.0	3.21	56.7
1.017	44.386	1.394	0.0	1.37	24.3

ARP Associates		Page 3
Northwest House	425-87-V3 - Network 2	
Servia Hill	1.100Yr + 40% CC Results	
Leeds LS6 2QH	Gypsy Lane, Wombwell	
Date 08/07/2022	Designed by JMG	
File V3 - NW2.MDX	Checked by MI	
Elstree Computing Ltd	Network 2018.1	

Manhole Schedules for Storm Network 2

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam., L*W (mm)	PN	Pipe Out Invert Level (m)	Pipe Out Diameter (mm)	Pipes In PN	Pipes In Invert Level (m)	Pipes In Diameter (mm)	Backdrop (mm)
38	61.886	1.425	Open Manhole	1200	1.000	60.461	225				
39	62.051	1.755	Open Manhole	1200	1.001	60.296	225	1.000	60.296	225	
40	60.580	1.733	Open Manhole	1500	1.002	58.847	300	1.001	58.922	225	
41	61.727	1.425	Open Manhole	1500	2.000	60.302	225				
42	61.990	2.190	Open Manhole	1200	2.001	59.800	225	2.000	59.800	225	
43	59.333	1.425	Open Manhole	1500	3.000	57.908	225				
44	60.547	2.868	Open Manhole	1500	2.002	57.679	300	2.001	59.121	225	1367
								3.000	57.754	225	
45	60.838	3.554	Open Manhole	1500	1.003	57.284	375	1.002	58.359	300	1000
								2.002	57.359	300	
46	56.905	2.655	Open Manhole	1500	1.004	54.250	375	1.003	54.250	375	
47	55.195	2.106	Open Manhole	1500	1.005	53.089	375	1.004	53.089	375	
48	54.469	2.114	Open Manhole	1500	1.006	52.355	375	1.005	52.355	375	
49	52.834	2.502	Open Manhole	1800	1.007	50.332	600	1.006	50.557	375	
50	53.772	1.425	Open Manhole	1200	4.000	52.347	225				
51	54.077	1.452	Open Manhole	1200	5.000	52.625	225				
52	53.980	1.930	Open Manhole	1500	4.001	52.050	225	4.000	52.050	225	
								5.000	52.050	225	
53	52.871	2.021	Open Manhole	1200	4.002	50.850	300	4.001	50.925	225	
54	52.413	2.193	Open Manhole	1800	1.008	50.220	600	1.007	50.220	600	
								4.002	50.520	300	
55	52.722	2.702	Open Manhole	1800	1.009	50.020	600	1.008	50.020	600	
56	52.553	1.422	Open Manhole	1200	6.000	51.131	150				
57	52.863	3.522	Open Manhole	1800	1.010	49.341	600	1.009	49.341	600	
								6.000	51.044	150	1253
58	52.607	4.424	Open Manhole	1800	1.011	48.183	675	1.010	48.258	600	
59	52.500	5.002	Open Manhole	1500	1.012	47.498	675	1.011	47.498	675	
60	52.500	5.042	Open Manhole	1500	1.013	47.458	675	1.012	47.458	675	
61	52.000	4.604	Open Manhole	1800	1.014	47.396	150	1.013	47.446	675	575
62	51.500	4.211	Open Manhole	1200	1.015	47.289	150	1.014	47.289	150	
63	48.050	2.761	Open Manhole	1200	1.016	45.289	150	1.015	45.289	150	
64	45.750	1.364	Open Manhole	1200	1.017	44.386	150	1.016	44.386	150	
65	45.245	1.796	Open Manhole	1200		OUTFALL		1.017	43.449	150	

ARP Associates		Page 4
Northwest House Servia Hill Leeds LS6 2QH	425-87-V3 - Network 2 1.100Yr + 40% CC Results Gypsy Lane, Wombwell	
Date 08/07/2022 File V3 - NW2.MDX	Designed by JMG Checked by MI	
Elstree Computing Ltd		Network 2018.1

PIPELINE SCHEDULES for Storm Network 2

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
1.000	o	225	38	61.886	60.461	1.200	Open Manhole	1200
1.001	o	225	39	62.051	60.296	1.530	Open Manhole	1200
1.002	o	300	40	60.580	58.847	1.433	Open Manhole	1500
2.000	o	225	41	61.727	60.302	1.200	Open Manhole	1500
2.001	o	225	42	61.990	59.800	1.965	Open Manhole	1200
3.000	o	225	43	59.333	57.908	1.200	Open Manhole	1500
2.002	o	300	44	60.547	57.679	2.568	Open Manhole	1500
1.003	o	375	45	60.838	57.284	3.179	Open Manhole	1500
1.004	o	375	46	56.905	54.250	2.280	Open Manhole	1500
1.005	o	375	47	55.195	53.089	1.731	Open Manhole	1500
1.006	o	375	48	54.469	52.355	1.739	Open Manhole	1500
1.007	o	600	49	52.834	50.332	1.902	Open Manhole	1800
4.000	o	225	50	53.772	52.347	1.200	Open Manhole	1200
5.000	o	225	51	54.077	52.625	1.227	Open Manhole	1200

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
1.000	13.185	79.9	39	62.051	60.296	1.530	Open Manhole	1200
1.001	51.943	37.8	40	60.580	58.922	1.433	Open Manhole	1500
1.002	28.274	57.9	45	60.838	58.359	2.179	Open Manhole	1500
2.000	16.644	33.2	42	61.990	59.800	1.965	Open Manhole	1200
2.001	51.719	76.2	44	60.547	59.121	1.201	Open Manhole	1500
3.000	26.051	169.2	44	60.547	57.754	2.568	Open Manhole	1500
2.002	29.629	92.6	45	60.838	57.359	3.179	Open Manhole	1500
1.003	69.252	22.8	46	56.905	54.250	2.280	Open Manhole	1500
1.004	26.367	22.7	47	55.195	53.089	1.731	Open Manhole	1500
1.005	11.695	15.9	48	54.469	52.355	1.739	Open Manhole	1500
1.006	25.844	14.4	49	52.834	50.557	1.902	Open Manhole	1800
1.007	22.334	199.4	54	52.413	50.220	1.593	Open Manhole	1800
4.000	16.601	55.9	52	53.980	52.050	1.705	Open Manhole	1500
5.000	7.741	13.5	52	53.980	52.050	1.705	Open Manhole	1500

ARP Associates		Page 5
Northwest House Servia Hill Leeds LS6 2QH	425-87-V3 - Network 2 1.100Yr + 40% CC Results Gypsy Lane, Wombwell	
Date 08/07/2022 File V3 - NW2.MDX	Designed by JMG Checked by MI	
Elstree Computing Ltd		Network 2018.1

PIPELINE SCHEDULES for Storm Network 2

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
4.001	o	225	52	53.980	52.050	1.705	Open Manhole	1500
4.002	o	300	53	52.871	50.850	1.721	Open Manhole	1200
1.008	o	600	54	52.413	50.220	1.593	Open Manhole	1800
1.009	o	600	55	52.722	50.020	2.102	Open Manhole	1800
6.000	o	150	56	52.553	51.131	1.272	Open Manhole	1200
1.010	o	600	57	52.863	49.341	2.922	Open Manhole	1800
1.011	o	675	58	52.607	48.183	3.749	Open Manhole	1800
1.012	o	675	59	52.500	47.498	4.327	Open Manhole	1500
1.013	o	675	60	52.500	47.458	4.367	Open Manhole	1500
1.014	o	150	61	52.000	47.396	4.454	Open Manhole	1800
1.015	o	150	62	51.500	47.289	4.061	Open Manhole	1200
1.016	o	150	63	48.050	45.289	2.611	Open Manhole	1200
1.017	o	150	64	45.750	44.386	1.214	Open Manhole	1200

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
4.001	33.138	29.5	53	52.871	50.925	1.721	Open Manhole	1200
4.002	16.428	49.8	54	52.413	50.520	1.593	Open Manhole	1800
1.008	19.969	99.8	55	52.722	50.020	2.102	Open Manhole	1800
1.009	23.751	35.0	57	52.863	49.341	2.922	Open Manhole	1800
6.000	7.334	84.3	57	52.863	51.044	1.669	Open Manhole	1800
1.010	11.031	10.2	58	52.607	48.258	3.749	Open Manhole	1800
1.011	8.081	11.8	59	52.500	47.498	4.327	Open Manhole	1500
1.012	11.626	290.7	60	52.500	47.458	4.367	Open Manhole	1500
1.013	5.730	477.5	61	52.000	47.446	3.879	Open Manhole	1800
1.014	8.537	79.8	62	51.500	47.289	4.061	Open Manhole	1200
1.015	65.368	32.7	63	48.050	45.289	2.611	Open Manhole	1200
1.016	9.025	10.0	64	45.750	44.386	1.214	Open Manhole	1200
1.017	50.375	53.8	65	45.245	43.449	1.646	Open Manhole	1200

ARP Associates		Page 6
Northwest House Servia Hill Leeds LS6 2QH	425-87-V3 - Network 2 1.100Yr + 40% CC Results Gypsy Lane, Wombwell	
Date 08/07/2022 File V3 - NW2.MDX	Designed by JMG Checked by MI	
Elstree Computing Ltd	Network 2018.1	

Setting Out Information - True Coordinates (Storm Network 2)

PN	USMH Name	Dia/Len (mm)	Width (mm)	US Easting (m)	US Northing (m)	Layout (North)
1.000	38	1200		440240.792	402422.690	
1.001	39	1200		440248.525	402412.011	
1.002	40	1500		440290.595	402442.477	
2.000	41	1500		440224.208	402445.851	
2.001	42	1200		440214.305	402459.228	
3.000	43	1500		440277.530	402504.512	
2.002	44	1500		440256.433	402489.229	
1.003	45	1500		440273.997	402465.367	
1.004	46	1500		440330.080	402505.994	
1.005	47	1500		440351.436	402521.459	
1.006	48	1500		440363.113	402522.108	
1.007	49	1800		440383.441	402506.149	
4.000	50	1200		440350.270	402472.642	
5.000	51	1200		440364.547	402452.927	
4.001	52	1500		440360.007	402459.197	
4.002	53	1200		440386.846	402478.634	

ARP Associates		Page 7
Northwest House Servia Hill Leeds LS6 2QH	425-87-V3 - Network 2 1.100Yr + 40% CC Results Gypsy Lane, Wombwell	
Date 08/07/2022 File V3 - NW2.MDX	Designed by JMG Checked by MI	
Elstree Computing Ltd	Network 2018.1	

Setting Out Information - True Coordinates (Storm Network 2)

PN	USMH Name	Dia/Len (mm)	Width (mm)	US Easting (m)	US Northing (m)	Layout (North)
1.008	54	1800		440398.784	402489.919	
1.009	55	1800		440412.853	402475.748	
6.000	56	1200		440430.480	402450.532	
1.010	57	1800		440427.957	402457.418	
1.011	58	1800		440438.173	402461.578	
1.012	59	1500		440441.225	402454.095	
1.013	60	1500		440443.662	402442.727	
1.014	61	1800		440438.333	402440.620	
1.015	62	1200		440441.760	402432.801	
1.016	63	1200		440503.071	402455.471	
1.017	64	1200		440512.008	402456.728	

PN	DSMH Name	Dia/Len (mm)	Width (mm)	DS Easting (m)	DS Northing (m)	Layout (North)
1.017	65	1200		440559.218	402474.303	

ARP Associates		Page 8
Northwest House Servia Hill Leeds LS6 2QH	425-87-V3 - Network 2 1.100Yr + 40% CC Results Gypsy Lane, Wombwell	
Date 08/07/2022 File V3 - NW2.MDX	Designed by JMG Checked by MI	
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Setting Out Information - Site Coordinates (Storm Network 2)

PN	USMH Name	Dia/Len (mm)	Width (mm)	US Easting (m)	US Northing (m)	Layout (North)
1.000	38	1200		440240.792	402422.690	
1.001	39	1200		440248.525	402412.011	
1.002	40	1500		440290.595	402442.477	
2.000	41	1500		440224.208	402445.851	
2.001	42	1200		440214.305	402459.228	
3.000	43	1500		440277.530	402504.512	
2.002	44	1500		440256.433	402489.229	
1.003	45	1500		440273.997	402465.367	
1.004	46	1500		440330.080	402505.994	
1.005	47	1500		440351.436	402521.459	
1.006	48	1500		440363.113	402522.108	
1.007	49	1800		440383.441	402506.149	
4.000	50	1200		440350.270	402472.642	
5.000	51	1200		440364.547	402452.927	
4.001	52	1500		440360.007	402459.197	
4.002	53	1200		440386.846	402478.634	

ARP Associates		Page 9
Northwest House Servia Hill Leeds LS6 2QH	425-87-V3 - Network 2 1.100Yr + 40% CC Results Gypsy Lane, Wombwell	
Date 08/07/2022 File V3 - NW2.MDX	Designed by JMG Checked by MI	
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Setting Out Information - Site Coordinates (Storm Network 2)

PN	USMH Name	Dia/Len (mm)	Width (mm)	US Easting (m)	US Northing (m)	Layout (North)
1.008	54	1800		440398.784	402489.919	
1.009	55	1800		440412.853	402475.748	
6.000	56	1200		440430.480	402450.532	
1.010	57	1800		440427.957	402457.418	
1.011	58	1800		440438.173	402461.578	
1.012	59	1500		440441.225	402454.095	
1.013	60	1500		440443.662	402442.727	
1.014	61	1800		440438.333	402440.620	
1.015	62	1200		440441.760	402432.801	
1.016	63	1200		440503.071	402455.471	
1.017	64	1200		440512.008	402456.728	

PN	DSMH Name	Dia/Len (mm)	Width (mm)	DS Easting (m)	DS Northing (m)	Layout (North)
1.017	65	1200		440559.218	402474.303	

Free Flowing Outfall Details for Storm Network 2

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
1.017	65	45.245	43.449	0.000	1200	0

ARP Associates		Page 10
Northwest House	425-87-V3 - Network 2	
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Leeds LS6 2QH	Gypsy Lane, Wombwell	
Date 08/07/2022	Designed by JMG	
File V3 - NW2.MDX	Checked by MI	
Elstree Computing Ltd	Network 2018.1	
<u>Simulation Criteria for Storm Network 2</u> Volumetric Runoff Coeff 0.750 Additional Flow - % of Total Flow 0.000 Areal Reduction Factor 1.000 MADD Factor * 10m³/ha Storage 2.000 Hot Start (mins) 0 Inlet Coefficient 0.800 Hot Start Level (mm) 0 Flow per Person per Day (l/per/day) 0.000 Manhole Headloss Coeff (Global) 0.500 Run Time (mins) 60 Foul Sewage per hectare (l/s) 0.000 Output Interval (mins) 1 Number of Input Hydrographs 0 Number of Storage Structures 1 Number of Online Controls 2 Number of Time/Area Diagrams 0 Number of Offline Controls 0 Number of Real Time Controls 0 <u>Synthetic Rainfall Details</u> Rainfall Model FSR Profile Type Summer Return Period (years) 100 Cv (Summer) 0.750 Region England and Wales Cv (Winter) 0.840 M5-60 (mm) 19.000 Storm Duration (mins) 30 Ratio R 0.365		
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ARP Associates		Page 11
Northwest House	425-87-V3 - Network 2	
Servia Hill	1.100Yr + 40% CC Results	
Leeds LS6 2QH	Gypsy Lane, Wombwell	
Date 08/07/2022	Designed by JMG	
File V3 - NW2.MDX	Checked by MI	
Elstree Computing Ltd	Network 2018.1	

Online Controls for Storm Network 2

Hydro-Brake® Optimum Manhole: 60, DS/PN: 1.013, Volume (m³): 12.5

Unit Reference	MD-SHE-0075-4000-2800-4000
Design Head (m)	2.800
Design Flow (l/s)	4.0
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	75
Invert Level (m)	47.458
Minimum Outlet Pipe Diameter (mm)	100
Suggested Manhole Diameter (mm)	1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	2.800	4.0
Flush-Flo™	0.327	2.6
Kick-Flo®	0.674	2.1
Mean Flow over Head Range	-	2.9

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	2.1	1.200	2.7	3.000	4.1	7.000	6.1
0.200	2.5	1.400	2.9	3.500	4.4	7.500	6.3
0.300	2.6	1.600	3.1	4.000	4.7	8.000	6.5
0.400	2.6	1.800	3.3	4.500	5.0	8.500	6.7
0.500	2.5	2.000	3.4	5.000	5.2	9.000	6.9
0.600	2.3	2.200	3.6	5.500	5.5	9.500	7.1
0.800	2.2	2.400	3.7	6.000	5.7		
1.000	2.5	2.600	3.9	6.500	5.9		

Hydro-Brake® Optimum Manhole: 61, DS/PN: 1.014, Volume (m³): 13.2

Unit Reference	MD-SHE-0075-3500-2100-3500
Design Head (m)	2.100
Design Flow (l/s)	3.5
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	75
Invert Level (m)	47.396
Minimum Outlet Pipe Diameter (mm)	100
Suggested Manhole Diameter (mm)	1200

ARP Associates		Page 12
Northwest House	425-87-V3 - Network 2	
Servia Hill	1.100Yr + 40% CC Results	
Leeds LS6 2QH	Gypsy Lane, Wombwell	
Date 08/07/2022	Designed by JMG	
File V3 - NW2.MDX	Checked by MI	
Elstree Computing Ltd	Network 2018.1	

Hydro-Brake® Optimum Manhole: 61, DS/PN: 1.014, Volume (m³): 13.2

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	2.100	3.5
Flush-Flo™	0.332	2.6
Kick-Flo®	0.674	2.1
Mean Flow over Head Range	-	2.7

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	2.1	1.200	2.7	3.000	4.1	7.000	6.1
0.200	2.5	1.400	2.9	3.500	4.4	7.500	6.3
0.300	2.6	1.600	3.1	4.000	4.7	8.000	6.5
0.400	2.6	1.800	3.3	4.500	5.0	8.500	6.7
0.500	2.5	2.000	3.4	5.000	5.2	9.000	6.9
0.600	2.3	2.200	3.6	5.500	5.5	9.500	7.1
0.800	2.2	2.400	3.7	6.000	5.7		
1.000	2.5	2.600	3.9	6.500	5.9		

ARP Associates		Page 13
Northwest House	425-87-V3 - Network 2	
Servia Hill	1.100Yr + 40% CC Results	
Leeds LS6 2QH	Gypsy Lane, Wombwell	
Date 08/07/2022	Designed by JMG	
File V3 - NW2.MDX	Checked by MI	
Elstree Computing Ltd	Network 2018.1	

Storage Structures for Storm Network 2

Cellular Storage Manhole: 59, DS/PN: 1.012

Invert Level (m) 47.498 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	417.0	0.0	2.801	0.0	0.0
2.800	417.0	0.0			

ARP Associates		Page 14
Northwest House	425-87-V3 - Network 2	
Servia Hill	1.100Yr + 40% CC Results	
Leeds LS6 2QH	Gypsy Lane, Wombwell	
Date 08/07/2022	Designed by JMG	
File V3 - NW2.MDX	Checked by MI	
Elstree Computing Ltd	Network 2018.1	

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm Network 2

Simulation Criteria

Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000
 Hot Start (mins) 0 MADD Factor * 10m³/ha Storage 2.000
 Hot Start Level (mm) 0 Inlet Coefficient 0.800
 Manhole Headloss Coeff (Global) 0.500 Flow per Person per Day (l/per/day) 0.000
 Foul Sewage per hectare (l/s) 0.000

Number of Input Hydrographs 0 Number of Storage Structures 1
 Number of Online Controls 2 Number of Time/Area Diagrams 0
 Number of Offline Controls 0 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FSR Ratio R 0.365
 Region England and Wales Cv (Summer) 0.750
 M5-60 (mm) 19.000 Cv (Winter) 0.840

Margin for Flood Risk Warning (mm) 300.0
 Analysis Timestep 2.5 Second Increment (Extended)
 DTS Status OFF
 DVD Status ON
 Inertia Status ON

Profile(s) Summer and Winter
 Duration(s) (mins) 15, 30, 60, 120, 180, 240, 360, 480, 600,
 720, 960, 1440, 2160
 Return Period(s) (years) 100
 Climate Change (%) 40

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.
1.000	38	15 Winter	100	+40%	100/15 Summer			
1.001	39	15 Winter	100	+40%	100/15 Summer			
1.002	40	15 Winter	100	+40%				
2.000	41	15 Winter	100	+40%	100/15 Summer			
2.001	42	15 Winter	100	+40%	100/15 Summer			
3.000	43	15 Winter	100	+40%	100/15 Summer			
2.002	44	15 Winter	100	+40%	100/15 Summer			
1.003	45	15 Winter	100	+40%	100/15 Summer			
1.004	46	15 Winter	100	+40%	100/15 Summer			
1.005	47	15 Winter	100	+40%	100/15 Summer			
1.006	48	15 Winter	100	+40%				
1.007	49	2160 Winter	100	+40%	100/15 Summer			
4.000	50	15 Winter	100	+40%	100/15 Summer			
5.000	51	15 Winter	100	+40%	100/15 Summer			
4.001	52	15 Winter	100	+40%	100/15 Summer			
4.002	53	2160 Winter	100	+40%	100/15 Summer			
1.008	54	2160 Winter	100	+40%	100/15 Summer			
1.009	55	2160 Winter	100	+40%	100/1440 Winter			

ARP Associates		Page 15
Northwest House Servia Hill Leeds LS6 2QH	425-87-V3 - Network 2 1.100Yr + 40% CC Results Gypsy Lane, Wombwell	
Date 08/07/2022 File V3 - NW2.MDX	Designed by JMG Checked by MI	
Elstree Computing Ltd	Network 2018.1	

100 year Return Period Summary of Critical Results by Maximum Level (Rank
1) for Storm Network 2

PN	US/MH Name	Water	Surcharged	Flooded	Flow / Cap.	Overflow (l/s)	Pipe	Status	Level
		Level (m)	Depth (m)	Volume (m³)			Flow (l/s)		Exceeded
1.000	38	61.728	1.042	0.000	0.60		32.5	FLOOD RISK	
1.001	39	61.639	1.118	0.000	1.33		108.4	SURCHARGED	
1.002	40	59.085	-0.062	0.000	0.98		129.2	OK	
2.000	41	61.003	0.476	0.000	0.77		66.0	SURCHARGED	
2.001	42	60.703	0.678	0.000	1.41		80.8	SURCHARGED	
3.000	43	58.959	0.826	0.000	1.44		55.1	SURCHARGED	
2.002	44	58.670	0.691	0.000	1.69		177.6	SURCHARGED	
1.003	45	57.752	0.093	0.000	0.94		374.1	SURCHARGED	
1.004	46	55.038	0.413	0.000	1.07		391.1	SURCHARGED	
1.005	47	53.709	0.245	0.000	1.17		390.8	SURCHARGED	
1.006	48	52.630	-0.100	0.000	0.88		404.8	OK	
1.007	49	51.759	0.827	0.000	0.06		21.5	SURCHARGED	
4.000	50	52.987	0.415	0.000	0.32		21.0	SURCHARGED	
5.000	51	53.037	0.187	0.000	0.42		44.9	SURCHARGED	
4.001	52	52.952	0.677	0.000	1.23		111.2	SURCHARGED	
4.002	53	51.759	0.609	0.000	0.04		5.0	SURCHARGED	
1.008	54	51.758	0.938	0.000	0.06		26.8	SURCHARGED	
1.009	55	51.757	1.137	0.000	0.03		28.3	SURCHARGED	

ARP Associates		Page 16
Northwest House	425-87-V3 - Network 2	
Servia Hill	1.100Yr + 40% CC Results	
Leeds LS6 2QH	Gypsy Lane, Wombwell	
Date 08/07/2022	Designed by JMG	
File V3 - NW2.MDX	Checked by MI	
Elstree Computing Ltd	Network 2018.1	

100 year Return Period Summary of Critical Results by Maximum Level (Rank
1) for Storm Network 2

US/MH		Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level
PN	Name								(m)
6.000	56	2160 Winter	100	+40%	100/15 Summer				51.757
1.010	57	2160 Winter	100	+40%	100/480 Winter				51.757
1.011	58	2160 Winter	100	+40%	100/30 Winter				51.756
1.012	59	2160 Winter	100	+40%	100/15 Summer				51.756
1.013	60	2160 Winter	100	+40%	100/15 Summer				51.756
1.014	61	2160 Winter	100	+40%	100/15 Summer				49.559
1.015	62	2160 Winter	100	+40%					47.323
1.016	63	2160 Winter	100	+40%					45.315
1.017	64	2160 Winter	100	+40%					44.424

		Surcharged		Flooded			Pipe		
		US/MH	Depth	Volume	Flow /	Overflow	Pipe	Level	
PN	Name		(m)	(m³)	Cap.	(l/s)	Flow (l/s)	Status	Exceeded
6.000	56		0.476	0.000	0.04		0.8	SURCHARGED	
1.010	57		1.816	0.000	0.03		29.1	SURCHARGED	
1.011	58		2.898	0.000	0.03		29.2	SURCHARGED	
1.012	59		3.583	0.000	0.01		4.4	SURCHARGED	
1.013	60		3.623	0.000	0.01		3.6	SURCHARGED	
1.014	61		2.013	0.000	0.20		3.5	SURCHARGED	
1.015	62		-0.116	0.000	0.12		3.5	OK	
1.016	63		-0.124	0.000	0.07		3.5	OK	
1.017	64		-0.112	0.000	0.15		3.5	OK	